

WHAT IS CLAIMED IS:

1. Apparatus for creating a zone of conditioned air over a surface of a bed, comprising:

a tower having at least a portion thereof extending generally vertically relative to the surface of the bed, the generally vertical portion having a flow passage therein through which conditioned air is able to flow;

an air delivery unit having first and second ends, a longitudinal axis extending from the first end to the second end, and a flow passage between the first and second ends extending generally parallel to the longitudinal axis, the air delivery unit being configured to connect to the tower so that the air delivery unit is cantilever supported by the tower with the longitudinal axis extending generally orthogonal to the generally vertical portion of the tower, and the air delivery unit being configured so that the flow passage of the air delivery unit is in flow communication with the flow passage of the tower when the air delivery unit is connected to the tower; and

the air delivery unit includes an air outlet section that is configured to place the flow passage of the air delivery unit in flow communication with the exterior of the air delivery unit, the air outlet section extends over a majority of the length of the air delivery unit, and the air outlet section is configured so that air is discharged therefrom generally orthogonal to the longitudinal axis.

2. The apparatus of claim 1, further comprising a blower unit configured to produce a flow of conditioned air, and the tower is connectable to the blower unit to place the flow passage of the tower in flow communication with the flow of conditioned air produced by the blower unit.

3. The apparatus of claim 1, wherein the first end of the air delivery unit is configured for detachable connection with the generally vertical portion of the tower.

4. The apparatus of claim 1, wherein the flow passage of the air delivery unit extends substantially the entire length of the air delivery unit between the first and second ends, and the air outlet section extends substantially the entire length of the flow passage of the air delivery unit.

5. Apparatus for creating a zone of conditioned air over a surface of a bed, comprising:

a tower having a first end and a second end, a flow passage between the first and second ends through which conditioned air is able to flow, and an outlet opening adjacent the second end in flow communication with the flow passage;

an air delivery unit having first and second ends, a longitudinal axis extending from the first end to the second end, a flow passage between the first and second ends extending generally parallel to the longitudinal axis, and an inlet opening at the first end in flow communication with the flow passage of the air delivery unit;

the first end of the air delivery unit being configured to detachably connect to the tower so that:

- i) the air delivery unit is cantilever supported by the tower with the longitudinal axis extending generally orthogonal to the tower,
- ii) the inlet opening of the air delivery unit is in flow communication with the outlet opening of the tower whereby the flow passage of the tower is in flow communication with the flow passage of the air delivery unit; and

the air delivery unit includes an air outlet section that is configured to place the flow passage of the air delivery unit in flow communication with the exterior of the air delivery unit.

6. The apparatus of claim 5, further comprising a blower unit configured to produce a flow of conditioned air, and the tower is connectable to the blower unit to place the flow passage of the tower in flow communication with the flow of conditioned air produced by the blower unit.

7. The apparatus of claim 5, wherein the flow passage of the air delivery unit extends substantially the entire length of the air delivery unit between the first and second ends, and the air outlet section extends substantially the entire length of the flow passage of the air delivery unit.

8. Apparatus for use in creating a zone of conditioned air over a surface of a bed, comprising

an air delivery unit having first and second ends, an interior air flow passage between the first and second ends, an air inlet opening in flow communication with the flow passage through which conditioned air enters the air flow passage, and an air outlet section that is configured to place the flow passage of the air delivery unit in flow communication with the exterior of the air delivery unit; wherein the flow passage is configured to maintain a generally constant air pressure along the length of the flow passage.

9. The apparatus of claim 8, wherein the flow passage is configured to achieve a generally constant air discharge pressure, a generally constant air discharge velocity, and a generally constant air discharge volume from the air outlet section.

10. The apparatus of claim 8, wherein the air outlet section is configured to detachably connect to the air delivery unit.

11. The apparatus of claim 10, wherein the air outlet section comprises an air permeable fabric material supported on a frame.

12. The apparatus of claim 10, wherein the air flow passage decreases in size in a direction from the first end toward the second end.

13. The apparatus of claim 12, wherein the air delivery unit decreases in size from the first end toward the second end.

14. The apparatus of claim 10, wherein the pressure drop of the conditioned air across the face of the fabric is preferably approximately 0.100 inches of water.

15. The apparatus of claim 10, wherein the velocity of the conditioned air leaving the face of the fabric is between about 30 ft/min and about 60 ft/min.

16. The apparatus of claim 15 the conditioned air leaving the face of the fabric is not lower than the surrounding air by 2 °F and not higher than the surrounding air by 1 °F.

17. Apparatus for use in creating a zone of conditioned air over a surface of a bed, comprising:

an air delivery unit having first and second ends, an interior air flow passage between the first and second ends, an air inlet opening in flow communication with the flow passage through which conditioned air enters the air flow passage, and an air outlet section that is configured to place the flow passage of the air delivery unit in flow communication with the exterior of the air delivery unit; wherein the air outlet section is configured to discharge conditioned air over an arc angle of from about 110 degrees to about 130 degrees, with about 30 degrees to about 40 degrees of arc back of a vertical axis.

18. The apparatus of claim 17, wherein the arc angle is from about 120 degrees to about 130 degrees.

19. The apparatus of claim 18, wherein the air outlet section is configured to discharge conditioned air over an arc length of from about 7.0 inch to about 8.0 inch.

20. Apparatus for use in creating a zone of conditioned air over a surface of a bed, comprising:

an air delivery unit having first and second ends, an interior air flow passage between the first and second ends, an air inlet opening in flow communication with the flow passage through which conditioned air enters the air flow passage, and an air outlet section that is configured to place the flow passage of the air delivery unit in flow communication with the exterior of the air delivery unit; and wherein the temperature of the conditioned air leaving the air outlet section is not lower than the surrounding air by 2 °F and not higher than the surrounding air by 1 °F.

21. The apparatus of claim 20, wherein the velocity of the conditioned air leaving the air outlet section is between about 30 ft/min and about 60 ft/min.

22. A method of creating a zone of conditioned air over a surface of a bed, comprising:

providing an air delivery unit having first and second ends, a flow passage between the first and second ends, and an air inlet opening in flow communication with the flow passage, and an air outlet section that is configured to place the flow passage of the air delivery unit in flow communication with the exterior of the air delivery unit; and

discharging the conditioned air from the air outlet section at a temperature that is not lower than the surrounding air by 2 °F and not higher than the surrounding air by 1 °F.

23. The method of claim 22, further comprising discharging the conditioned air from the air outlet section with a velocity between about 30 ft/min and about 60 ft/min.